
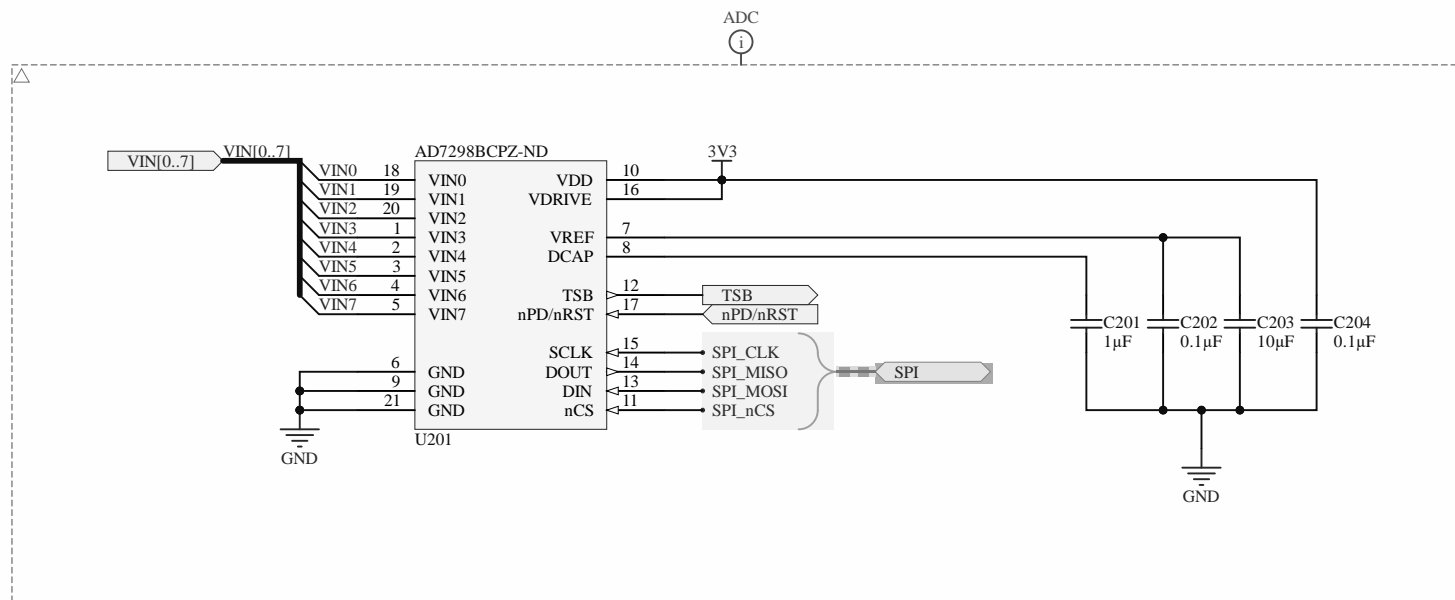


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Title <b><i>Heracles Nadir Panel</i></b>			University of Alberta Department of Electrical and Computer Engineering Edmonton AB, Canada T6G 1H9	 <b>UNIVERSITY OF ALBERTA</b> EDMONTON · ALBERTA · CANADA
Size: Letter	Number: 1	Revision: *		
Date: 8/3/2020	Time: 2:27:51 PM	Sheet 1 of 4		
File: C:\Users\nicho\AlbertaSat\projects\Heracles Nadir Panel\Heracles Nadir Panel.SchDoc				



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Title **AD7298 12-Bit SPI ADC**

University of Alberta  
 Department of Electrical  
 and Computer Engineering  
 Edmonton AB, Canada  
 T6G 1H9



Size: Letter

Number: 2

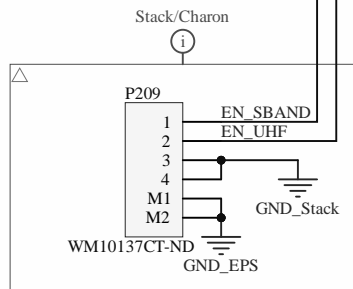
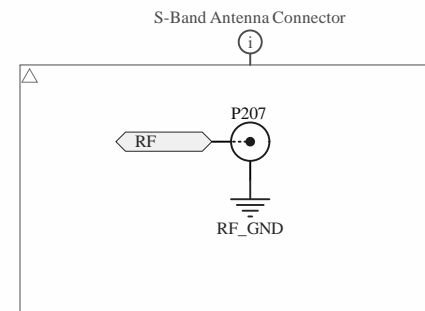
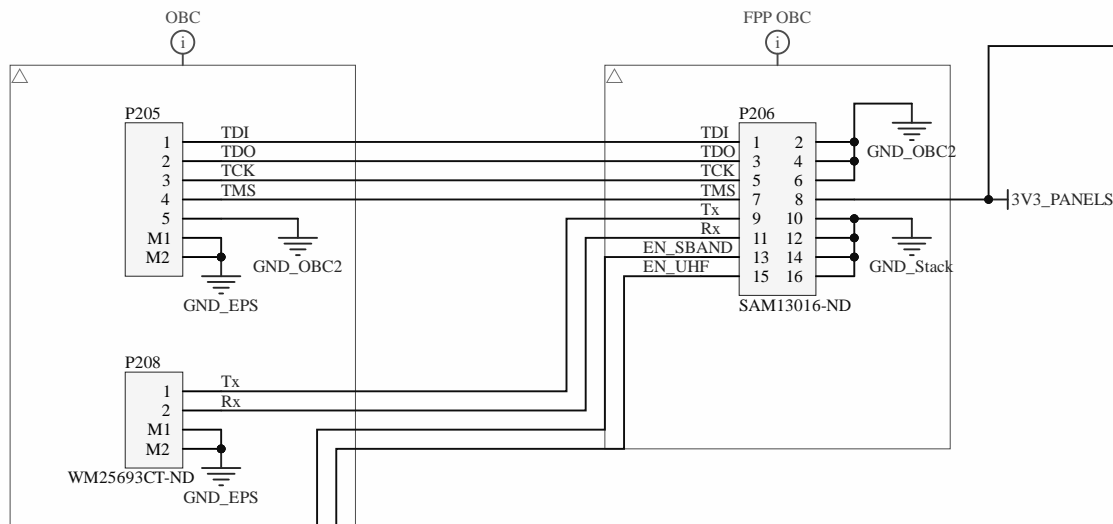
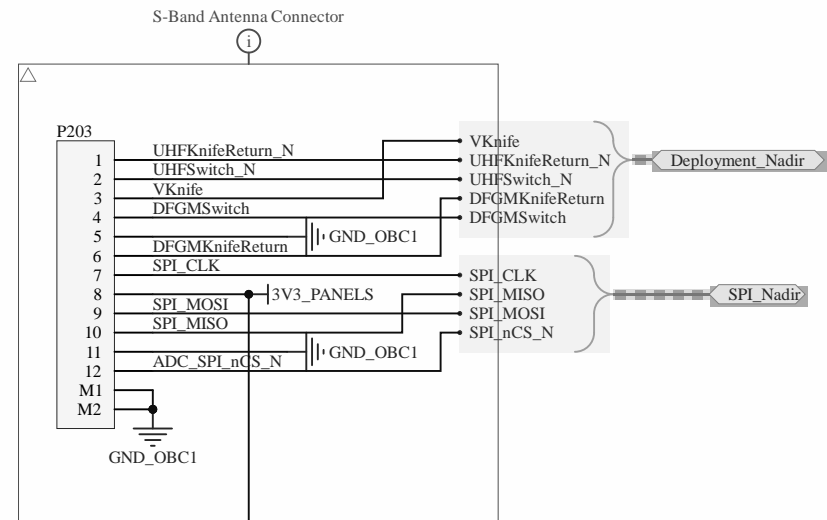
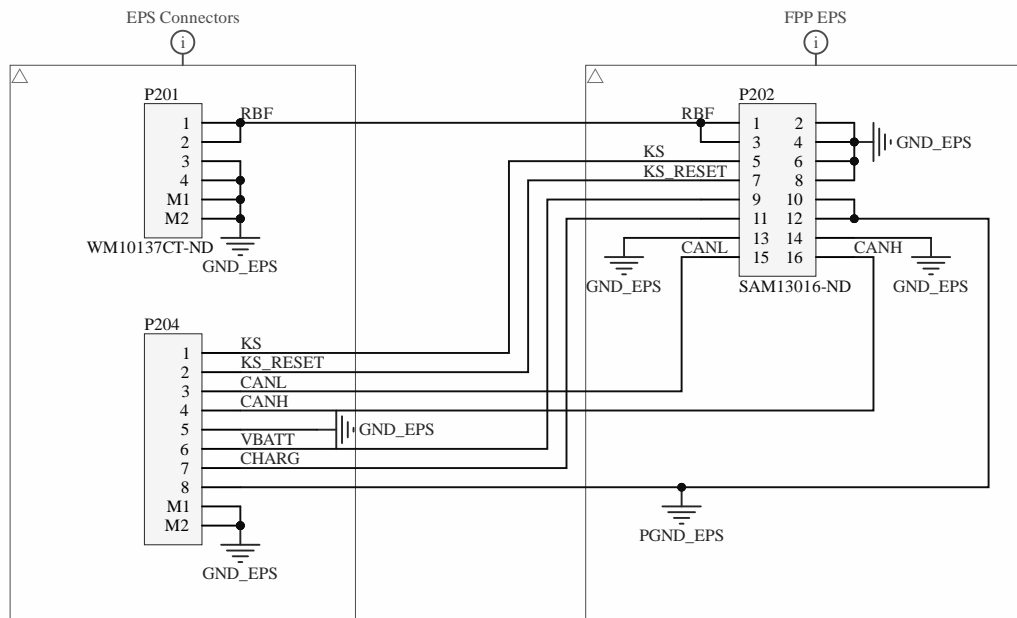
Revision: \*

Date: 8/3/2020

Time: 2:27:51 PM

Sheet 2 of 7

File: C:\Users\nicho\AlbertaSat\libraries\Schematic Sheets\AD7298 12-Bit SPI ADC.SchDoc



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Title **Heracles Headers**

University of Alberta  
Department of Electrical  
and Computer Engineering  
Edmonton AB, Canada  
T6G 1H9



Size: Letter

Number: 2

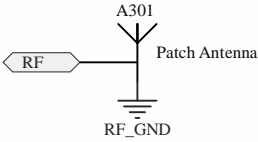
Revision: \*

Date: 8/3/2020

Time: 2:27:51 PM

Sheet 2 of 4


File: C:\Users\nicho\AlbertaSat\projects\Heracles Nadir Panel\Heracles Headers.SchDoc

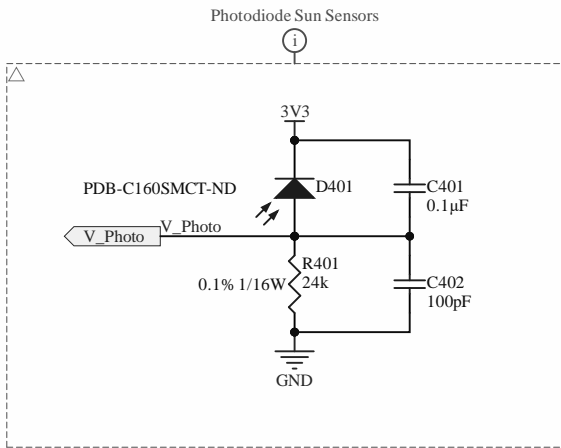


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Title <i><b>S-Band Antenna</b></i>			<i>University of Alberta Department of Electrical and Computer Engineering Edmonton AB, Canada T6G 1H9</i>	 <b>UNIVERSITY OF ALBERTA</b> EDMONTON · ALBERTA · CANADA
Size: Letter	Number: 3	Revision: *		
Date: 8/3/2020	Time: 2:27:51 PM	Sheet 3 of 4		
File: C:\Users\nicho\AlbertaSat\projects\Heracles Nadir Panel\S-Band Antenna.SchDoc				



Photodiode:

$I_{sc} = 80\mu A$ ;  $I_{dark} = 2nA \rightarrow I_{illum} < 100\mu A$


$V_{photo} = I_{illum} R \leq 2.5 V \rightarrow R \geq 25k\Omega$

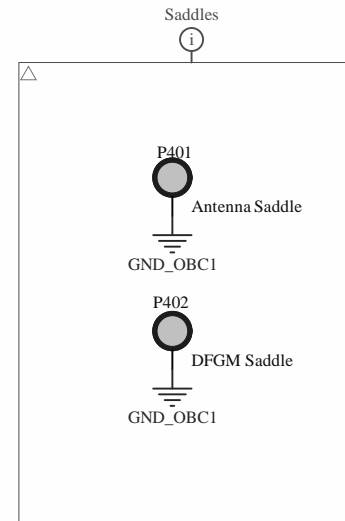
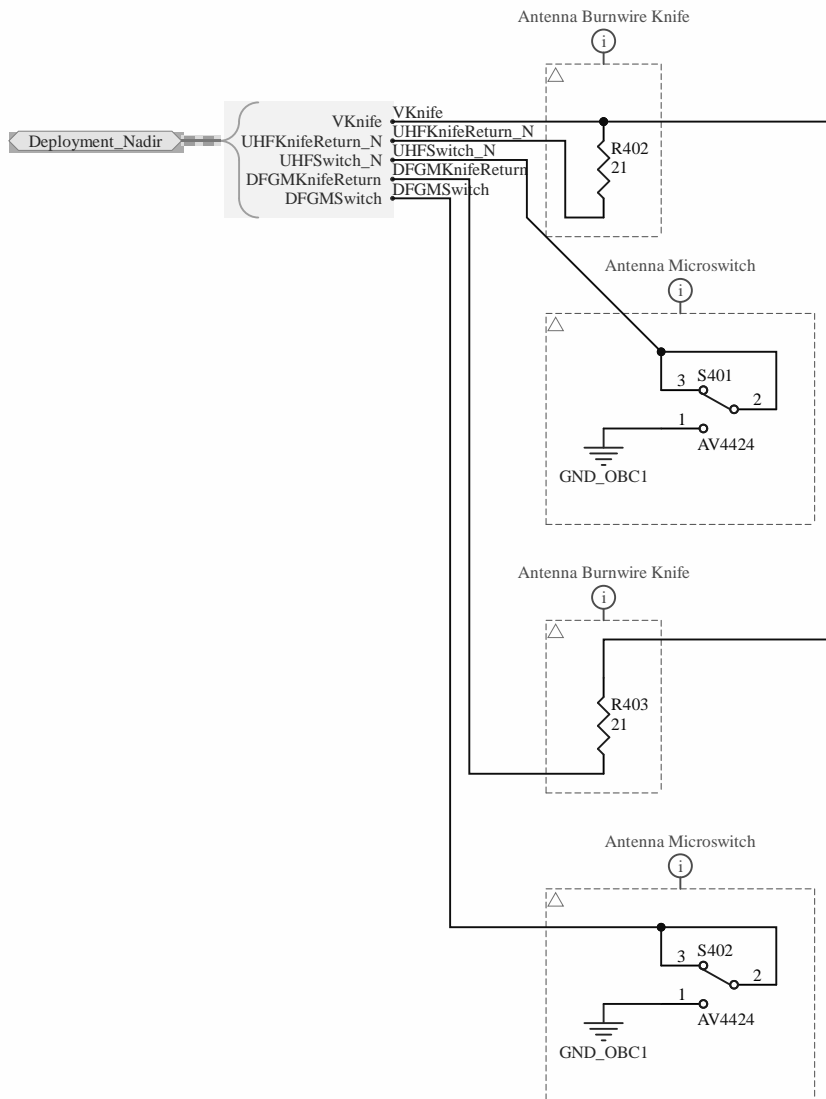
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Title <i><b>Photodiode_Sun_Sensor</b></i>			University of Alberta Department of Electrical and Computer Engineering Edmonton AB, Canada T6G 1H9	 <b>UNIVERSITY OF ALBERTA</b> EDMONTON · ALBERTA · CANADA
Size: Letter	Number: 4	Revision: *		
Date: 8/3/2020	Time: 2:27:51 PM	Sheet 4 of 7		
File: C:\Users\nicho\AlbertaSat\libraries\Schematic Sheets\Photodiode_Sun_Sensor.SchDoc				



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Title **Mechanical Interfacing**

University of Alberta  
Department of Electrical  
and Computer Engineering  
Edmonton AB, Canada  
T6G 1H9



Size: Letter

Number: 4

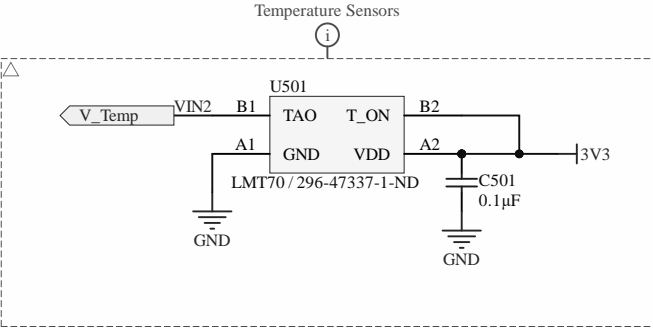
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Date: 8/3/2020

Time: 2:27:51 PM


Sheet 4 of 4

File: C:\Users\nicho\AlbertaSat\projects\Heracles Nadir Panel\Mechanical Interfacing.SchDoc



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Title <i>Temp_Sensor</i>			University of Alberta Department of Electrical and Computer Engineering Edmonton AB, Canada T6G 1H9	 EDMONTON · ALBERTA · CANADA
Size: Letter	Number:5	Revision:*		
Date: 8/3/2020	Time: 2:27:51 PM	Sheet5 of 7		
File: C:\Users\nicho\AlbertaSat\libraries\Schematic Sheets\Temp_Sensor.SchDoc				



# HERACLES: NADIR INTERFACE

8/3/2020 V1.01 SVN XXXX

Nicholas J. Sorensen, Lydia Sui

STARBOARD

A301

P401

S401

D401

U501

P402

S402

PORT

I GND\_EPS II PGNDI I CANH

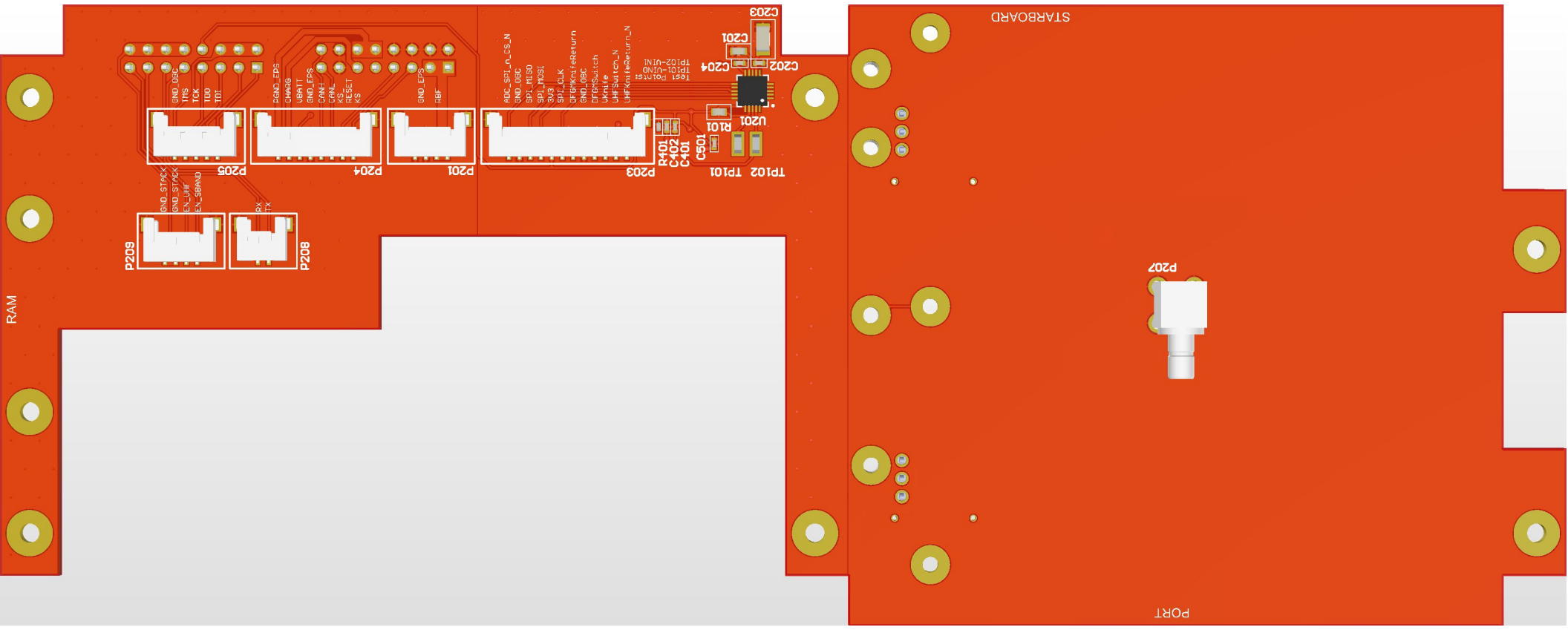
I GND\_OBC II GND\_STACKI

P202

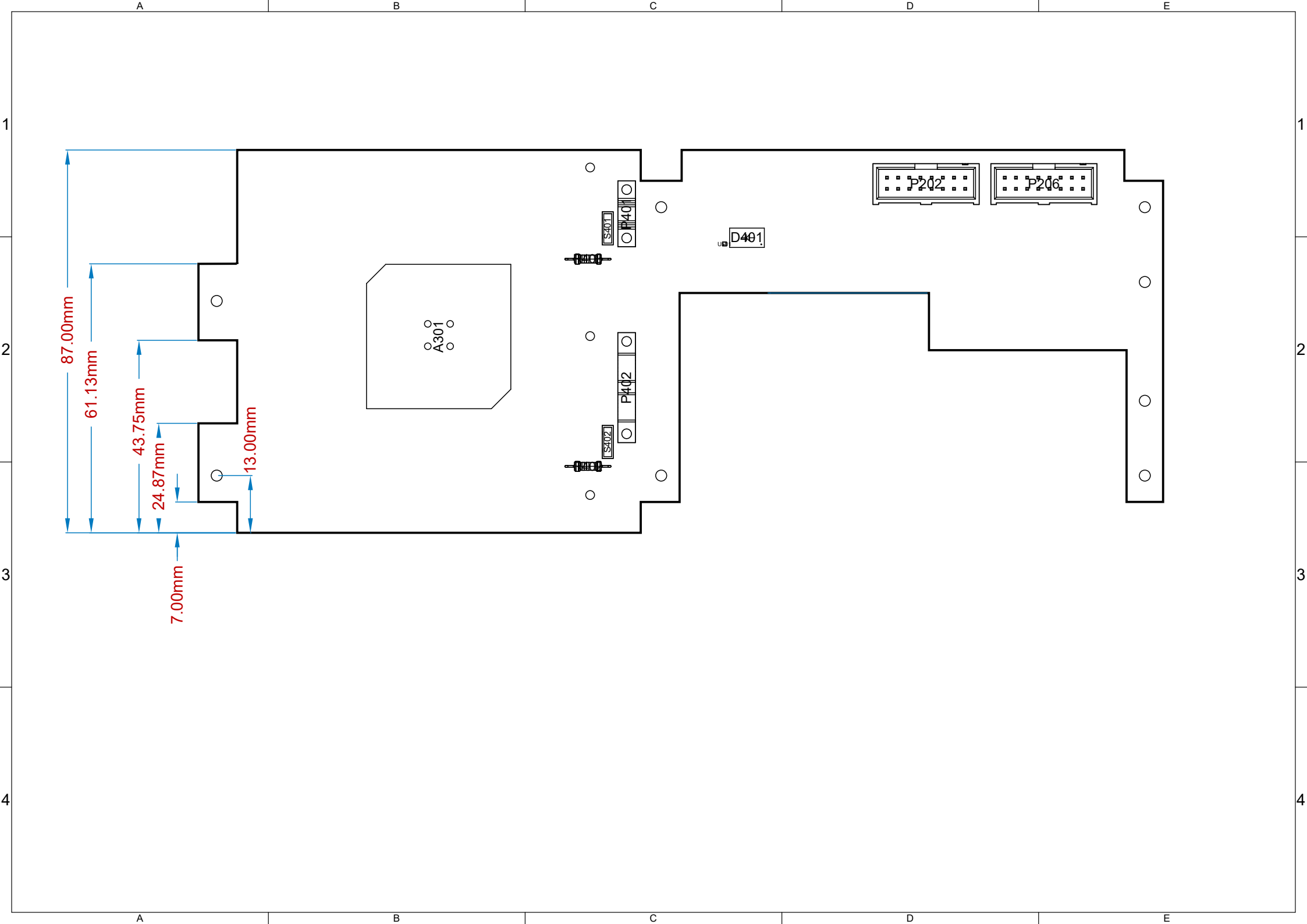
CANL  
GND x 2  
CHARG  
CBATT  
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EN\_UHF  
EN\_SBRAND  
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Tx  
TMS  
TCK  
TDO  
TDI

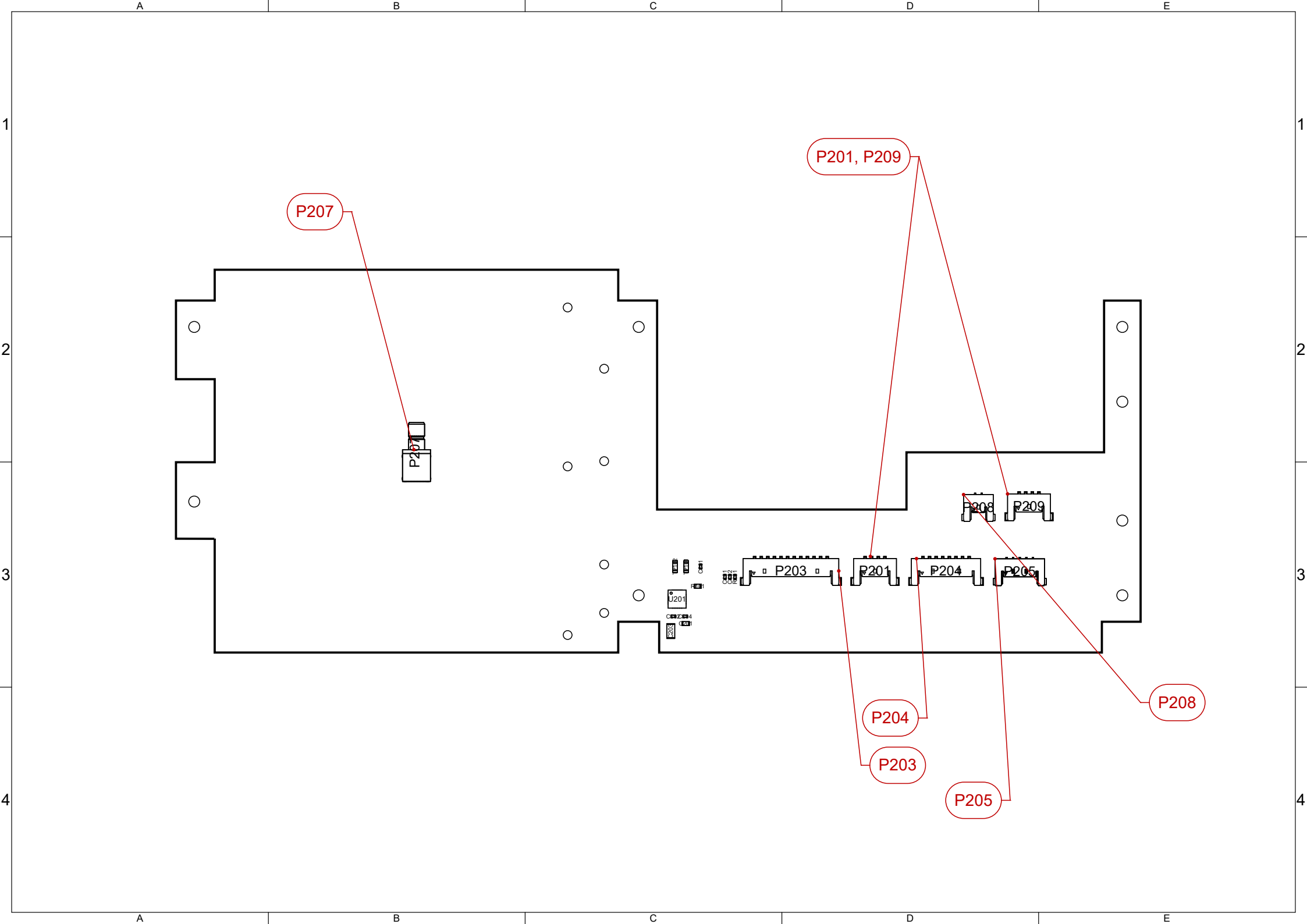
RAM











Comment	Description	Designator	Footprint	LibRef	Quantity
Patch Antenna		A301	Patch_Antenna	PXX-ABS-00009	1
	CAP CER 1UF 25V X7R 0603	C201	TDK-CGA3E	PC-TDK-02603	1
	CAP CER 0.1UF 50V X7R 0402	C202, C204	TDK-CGA2B	PC-TDK-02259	2
	CAP CER 10UF 25V X7R 1206	C203	TDK-CGA5L	PC-TDK-02917	1
Cap	CAP CER 0.1UF 50V X7R 0402, CAP CER 100PF 50V C0G 0402	C401, C402, C501	TDK-CGA2B	PC-TDK-02259, PC-TDK-01227	3
PDB-C160SMCT-ND	SENSOR PHOTODIODE 850NM 2SMD GW	D401	PDB-C160SM	PXX-ADP-00000	1
WM10137CT-ND	CONN HEADER SMD R/A 4POS 1.5MM	P201, P209	MOLX-5040500491	63	2
SAM13016-ND	CONN HEADER VERT 16POS 2.54MM	P202, P206	TSS-108-01-G-D	PP-SAM-00007	2
PICOLOCK 12	CONN HEADER SMD R/A 12POS 1.5MM	P203	MOLX-5040501291	71	1
WM14421CT-ND	CONN HEADER SMD R/A 8POS 1.5MM	P204	MOLX-5040500891	67	1
PICOLOCK 5	CONN HEADER SMD R/A 5POS 1.5MM	P205	MOLX-5040500591	64	1
J10399-ND	CONN SMB PLUG R/A 50OHM PCB	P207	J10399-ND	P01-CIN-00000	1
WM25693CT-ND	CONN HEADER SMD R/A 2POS 1.5MM	P208	MOLX-5040500291	61	1
Antenna Saddle		P401	ANTENNA_SADDLE	PXX-ABS-00001	1
DFGM Saddle		P402	DFGM_Saddle	PXX-ABS-00010	1
Res3	RES SMD 10K OHM 1% 1/8W 0603	R101	VSH-0603MCT	PR-VSH-00143	1
0.1% 1/16W	RES SMD 24K OHM 0.1% 1/16W 0402	R401	PANA-ERA2A	17830	1
Res3	21 Ohms $\pm 1\%$ 1W Through Hole Resistor Axial Flame Proof, Moisture Resistant, Safety Metal Film	R402, R403	VSH-CPF1	PR-VSH-00317	2
AV4424	SWITCH SNAP ACT SPDT 500MA 30V	S401, S402	PANA-AV4424	20035	2
5017	PC TEST POINT MINI SMD	TP101, TP102	KS-5017	PTP-KS-00001	2
AD7298BCPZ-ND	IC ADC 12BIT SAR 20LFCSP-WQ	U201	ADI-CP-20-8	PU-ADI-00007	1
LMT70 / 296-47337-1-ND	Temperature Sensor Analog, Local -55°C ~ 150°C 5.194mV/°C 4-DSBGA (0.81x0.81)	U501	TI-YFQ0004	70	1



# HERACLES: NADIR INTERFACE

8/3/2020 V1.01 SVN XXXX

Nicholas J. Sorensen, Lydia Sui

STARBOARD

P401

S401

R403

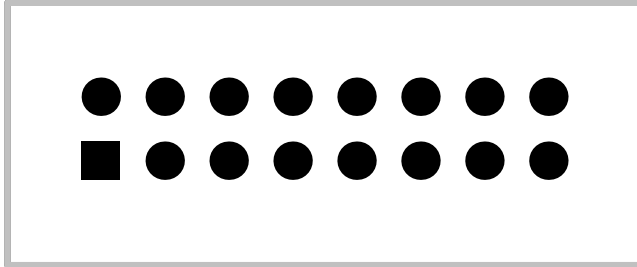
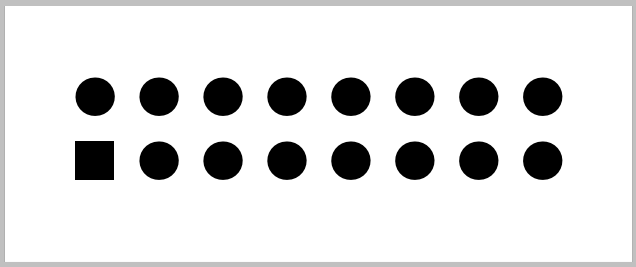
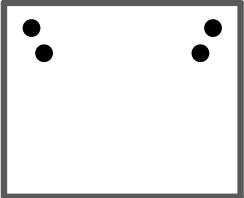
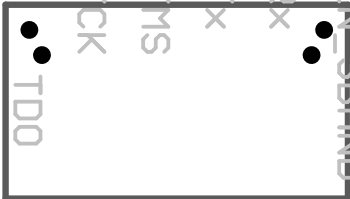
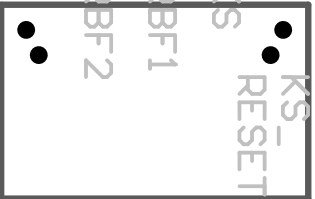
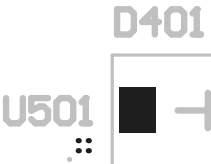
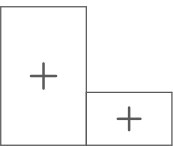
A301

P402

S402

R402

PORT



P206

RAM

